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(54) Title of the Invention: Gelatinous Composition for Skin

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## **Specification**

### **1. Title of the Invention**

#### **Gelatinous Composition for Skin**

### **2. Claims**

(1) A gelatinous compound for skin, wherein an anionic polymer compound and a water-soluble non-ionic polymer compound are compounded in a solvent whose main component is a polyhydric alcohol, and wherein the concentration of polyhydric alcohol in the solvent is 80 wt% or greater.

(2) The gelatinous compound for skin described in claim 1, wherein the compositional ratio of the solvent is 99.7 wt% or less of the entire composition.

### **3. Detailed Description of the Invention**

#### **(Industrial Field of Application)**

The present invention relates to a gelatinous compound for skin. The purpose of the present invention is to provide a gelatinous composition for skin that can be used as a pack or massage agent. When applied using the fingers or palm of the hand, it goes on without running and feels good on the skin. When applied as a pack, the heat from the hydration reaction with the water content of the skin generates heat. When the gelatinous compound for skin is used in a massage, the force of the massage is tangibly transferred to the skin without excessive peeling of the corneum due to friction.

(Prior Art)

Skin generally comprises the stratum comeum consisting of hard protein, the epidermis covering the stratum comeum, tough fiber tissue and elastic subcutaneous tissue. This is extremely important to the functioning of the human body.

The skin performs protective, temperature-regulating, sense, respiratory, secretive and absorptive functions. The skin also gradually changes state as the body matures from childhood to the prime of life.

As skin ages, it begins to wither, lose elasticity and appear noticeably more wrinkled. A balanced diet and psychological stability are very important to the skin.

Another means of preserving the health of the skin is massage.

Massage stimulates the surface of the skin, which gets the blood flowing, increases metabolism, and activates skin tissue. In order to prevent excessive peeling of the comeum due to friction during massage, oily creams or lotions are used whose main component is a hydrocarbon-based oil.

However, the massage effect is not as good when one of these massage creams or massage lotions is used because insufficient load is applied to the skin.

Also, these massage creams and massage oils do not sufficiently rinse off because their main component is an oil. After use, the skin remains oily to the touch.

A pack temporarily raises skin temperature, increases blood flow and boosts the metabolism of skin tissue, and there is interest in developing a good massage agent that combines these functions.

**(Means of Solving the Problem)**

The present invention is a gelatinous compound for skin, wherein an anionic polymer compound and a water-soluble non-ionic polymer compound are compounded in a solvent whose main component is a polyhydric alcohol, and wherein the concentration of polyhydric alcohol in the solvent is 80 wt% or greater. This is successful at eliminating the shortcomings of the prior art.

**(Composition of the Invention)**

The main component in the solvent used in the present invention is a polyhydric alcohol such as propylene glycol, glycerin, diglycerin and dipropylene glycol.

These polyhydric alcohols feel warm to the touch when used because of heat from the hydration reaction with the water content of the skin.

The concentration of polyhydric alcohol should range between 80 and 100 wt%.

If there is less than 80 wt% in the solvent when the solvent is compounded to prepare the gelatinous composition for skin, polyhydric alcohol reacts with the water or lower alcohol used as a diluent in the solvent and heat is generated from the hydration reaction. When applied to the skin, there is no hydration reaction heat and a heat effect is not experienced.

The compositional ratio of the solvent should be 99.7 wt% or less of the entire composition.

If the amount of solvent exceeds 99.7 wt% of the entire composition, the composition does not gel properly during compounding.

In addition to the polyhydric alcohol, the solvent in the present invention can contain 0 to 20 wt% water, lower alcohol such as ethanol, isopropyl alcohol or propyl alcohol, or an organic solvent such as ethyl carbitol, ethyl cellosolve, chloroform, isopropyl myristate or isopropyl palmitate.

The anionic polymer compound used in the present invention can be polyacrylic acid, carboxyethyl cellulose or carboxyvinyl polymer.

Because the non-ionic polymer compound used in the present invention is the gelling agent, a carboxyvinyl polymer is preferred.

This is because a gel produced by a carboxyvinyl polymer has many advantages. It is non-sticky, resists microbes and molds, a small amount provides high viscosity, and it is thixotropic. It is also highly stable and can be used in a wide variety of solvents containing water and different alcohols and polyhydric alcohols.

The amount of anionic polymer compound used in the present invention should be 0.1 to 10 wt% of the overall composition.

If less than 0.1 wt% is used, gel formation is poor. If more than 10 wt% is used, solubility and dispersability decline and the composition becomes difficult to prepare. The gel viscosity is also too high and the composition does not feel good to the touch.

After the anionic polymer composition has been dissolved and dispersed in the solvent, an appropriate neutralizer is added.

A neutralizer is added to neutralize the anionic polymer composition and provide a more viscous gel. This can be an inorganic alkali compound or an organic alkali compound.

Specific examples of inorganic alkali compounds include sodium hydroxide, calcium hydroxide and potassium hydroxide. Specific examples of organic alkali compounds include monoethanol amine, diethanol amine, triethanol amine, aminomethyl propanol and aminomethyl propanediol.

The amount of neutralizer added should be enough to cause the anionic polymer compound to gel. The actual amount depends on the type of anionic polymer compound and the amount of anionic polymer compound used.

The water-soluble non-ionic polymer compound used in the present invention is preferably hydroxyethyl cellulose, xanthan gum, polyvinyl alcohol or polyvinyl pyrrolidone. Among these, hydroxyethyl cellulose and polyvinyl pyrrolidone are recommended.

By compounding the water-soluble non-ionic polymer compound with the anionic polymer composition in a solvent whose main component is a polyhydric alcohol, sufficient load can be applied during a massage to the skin without causing excessive peeling of the corneum due to friction.

The amount of water-soluble non-ionic polymer compound used in the present invention should be 0.1 to 10 wt% of the overall composition.

If less than 0.1 wt% is used, the massage effect of the resulting gelatinous composition for skin is not sufficient. If more than 10 wt% is used, it becomes difficult to stir because of solubility. Therefore, less than 10 wt% is used.

In the present invention, additives such as fragrance and pigment are added in the usual way. Polyethylene particles can be added to improve the feel of the composition on the skin.

The following is a clearer explanation of the effect of the present invention with reference to working examples of the present invention.

(Working Examples 1-7 and Comparative Examples 1-3)

The gelatinous compositions for skin in Working Examples 1-7 and Comparative Examples 1-3 were prepared as shown in Table 1 through Table 4.

The gelling effect, heat effect and massage effect of these gelatinous compositions for skin were then tested in the following manner.

After applying 5 g of the compositions to the inside skin of the upper arm on 10 test subjects (19 to 30 years old) and allowing them to stand for several minutes, the arms were massaged for several minutes more. The subjects were then interviewed and numeric values were assigned to the various effects. Average values were then calculated.

The evaluation process used a five-value scale: -2, -1, 0, +1, +2.

In the final evaluation, the averages were assigned symbols: a result between -1 and -2 was assigned x (poor), between 0 and -1 was assigned Δ

(somewhat poor), between 0 and +1 was assigned O (good), and between 1 and 2 was assigned ● (very good).

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Table 1 (Working Example 1)

Carboxyvinyl Polymer	0.4
Polyvinyl Pyrrolidone	3.0
Glycerin	90.0
Polyoxyethylene (20) Polyoxypropylene (6) Decyltetradecylether	0.2
Fragrance	0.2
Methyl p-Aminobenzoic Acid	0.2
Triethanol Amine	0.4
Pigment	Trace
Purified Water	Amount
	Remainder
Total	100.0

Table 2 (Working Example 2)

Carboxyvinyl Polymer	0.2
Polyvinyl Pyrrolidone	5.0
Diglycerin	40.0
Propylene Glycol	40.0
Polyoxyethylene (60) Hardened Castor Oil	0.1
Fragrance	0.1
Methyl p-Aminobenzoic Acid	0.2
Triethanol Amine	0.2
Pigment	Trace
Polyethylene Particles	Amount
Purified Water	5.0
	Remainder
Total	100.0

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Table 3

	Working Examples		Comparative Example
	3	4	1
Glycerin	90.0	90.0	90.0
Diglycerin	-	-	-
Propylene Glycol	-	-	-
Polypropylene Pyrrolidone	1.0	0.1	-
Hydroxyethyl Cellulose	-	-	-
Carboxyvinyl Polymer	1.0	1.0	1.0
Triethanol Amine	1.0	1.0	1.0
Purified Water	Remainder	Remainder	Remainder

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Table 4

	Working Examples		Comparative Example
	5	6	2
Glycerin	-	-	-
Diglycerin	-	-	-
Propylene Glycol	80.0	80.0	80.0
Polypropylene Pyrrolidone	-	-	-
Hydroxyethyl Cellulose	1.0	1.0	1.0
Carboxyvinyl Polymer	0.5	0.1	-
Triethanol Amine	0.5	0.1	-
Purified Water	Remainder	Remainder	Remainder

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Table 5

	Working Examples		Comparative Example
	7	8	3
Glycerin	-	-	-
Diglycerin	99.7	80.0	70.0
Propylene Glycol	-	-	-
Polypropylene Pyrrolidone	0.1	0.1	0.1
Hydroxyethyl Cellulose	-	-	-
Carboxyvinyl Polymer	0.1	0.1	0.1
Triethanol Amine	0.1	0.1	0.1
Purified Water	Remainder	Remainder	Remainder

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Table 6

	Working Examples								Comparative Examples		
	1	2	3	4	5	6	7	8	1	2	3
Gel	●	●	●	●	●	○	○	○	●	x	○
Heat Action	●	●	●	●	○	○	●	○	●	○	x
Massage	●	●	●	○	○	○	○	○	Δ	Δ	Δ

(Effect of the Invention)

As described above, the present invention is a gelatinous compound for skin, wherein an anionic polymer compound and a water-soluble non-ionic polymer compound are compounded in a solvent whose main component is a polyhydric alcohol, and wherein the concentration of polyhydric alcohol in the solvent is 80 wt% or greater. As a result, it has the following effects.

When applied using the fingers or palm of a hand after pouring it out from the mouth of a bottle, it covers the skin without becoming runny.

When covering the skin, it feels good and not greasy. The heat generated by the hydration reaction with the water content of the skin makes the skin warm.

During the massage, the force of the massage is transferred tangibly to the skin without causing excess peeling of the comeum due to friction.

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